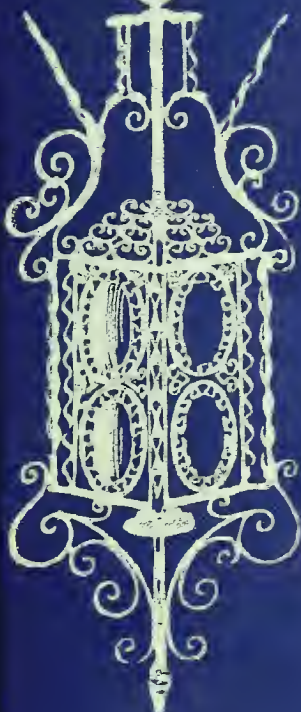


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Bent Ironwork

FOR
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By Anna



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BENT IRONWORK

Bent Ironwork

FOR

BEGINNERS AND PROFICIENTS

BY

AMANDA SANDERS

*WITH FIFTY-FIVE ILLUSTRATIONS BY THE
AUTHOR*

LONDON :

CHAPMAN AND HALL, LD.

1895
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PREFACE

THIS manual of Bent Iron Work is written for the amateur and the pupil ; but the lessons are progressive, and I should like to believe that the advanced student of the art and the practical worker may find in my pages some hints and considerations not unworthy of their attention.

A large part of the book is devoted to the production of patterns, as the difficulty in procuring suitable designs sometimes discourages the worker who is unable or unwilling to make his own.

In regard to the illustration of my book, I owe much to the suggestions of my friends and of my pupils. My thanks are especially due to Mr. Arthur Williams, through whose courtesy and kindness I

am enabled to reproduce many beautiful Venetian designs.

The art of Bent Iron Work is essentially of Italian origin. In Venice it is practised to this day with greater success than elsewhere, and some of the best designs in this beautiful art are still of Venetian provenance.

A. SANDERS.

LIST OF ILLUSTRATIONS

FIG.		PAGE
1.	Cutting Shears	5
2.	Flat-nose Pliers	5
3.	Round-nose Pliers... ..	6
4.	Letter Rack	7
5.	S-Curve (part of Letter Rack, Fig. 4)	8
6.	C-Curve (part of Fig. 4)	9
7.	Large C-Curve (part of Fig. 4)	9
8.	Clasp for join	10
9.	Connecting Strap (Fig. 4)	10
10.	Vase Mount	11
11.	Matchbox Holder	12
12.	"Spider" Candlestick	14
13.	Candlestick	15
14.	Photograph Frame	16
15.	Fern or Flower Pot	17
16.	Teapot Stand	18
17.	Wall Bracket	19
18.	Fruit or Cake Dish	20
19.	Vase... ..	21
20.	Candlestick... ..	22
21.	Candle Bracket	23
22.	Flower Vase	24
23.	Pipe Rack	25
23A.	Pipe Rack complete	26

FIG.	PAGE
24, 25. Panel and Bottom for Basket...	27
26. Hanging Bucket ...	28
27. Candle Bracket. This should be made of the widest iron, and nailed to a piece of wood, as in Fig. 21...	29
28. Candlestick ...	30
29. Small Hanging Lamp and Bracket ...	31
30. Newspaper Rack ...	32
31. Hanging Lamp and Bracket ...	33
32. Chain for Hanging Lamp ...	34
33, 34, and 35. Panels suitable for Grilles...	35
36. Sanctuary Lamp ...	37
37. Table Lamp ...	38
38. Candelabra Pendant with Chain ...	39
39. Photo Frame ...	40
40. Ditto ...	40
41. Stand for Vase or Pot ...	41
42, 43, and 44. Mounts for Vases ...	41
45, 46, and 47. Ditto ...	42
48. Mount for Plate ...	42
49. Stand with Hanging Basket ...	43
50. Bracket ...	44
51. Fire Screen...	45
52. Framework for Lamp ...	46
53. Ditto ...	46
54. Ditto ...	47
55. Ditto ...	48

INTRODUCTION

THE art of working decoratively in Bent Iron is one of recent introduction and increasing favour. It is essentially an art for the home circle, its practice is not accompanied by noise or mess, and though not exactly easy—since no art that is worth practising is easy—it is at least not difficult of acquisition by any pupil who will give time and trouble to learning the elements, who possesses deft fingers and a taste and eye for decorative form.

There are but three or four tools required, and the material itself is prepared and sold by special manufacturers. It is cheap, and it can be converted to most exquisite decorative purposes without the expenditure of any excessive force.

Besides the simplicity of materials and ease with which they can be procured, the work possesses other attractions. It can be taught to children. With boys it is extremely popular; and some years spent in teaching it among National and Board School boys

and the ordinary working-lads, varying in age from eight to eighteen years, has convinced me that it should take a prominent place in the technical education of our schools. Work of this kind not only teaches skill in handling tools, but it does a very great deal to train the eye and educate the taste. Apart from such considerations it forms a delightful home recreation.

A more serious consideration to urge in favour of Bent Iron Work is that it is, in the true sense of the word, an industry. The productions of the Bent Iron worker can be sold with a profit. The worker at this art has the satisfaction of knowing that he is not contributing to the vast mass of the so-called art-at-home products that encumber our bazaar and charity sales and little suburban drawing-rooms with ephemeral objects of horror—poker work, panels, macrame fringes, crochet mats, painted drain pipes, crinkled paper lamp shades, sunflower pincushions, and all the rest of it.

In the following pages I have carefully avoided recommending the worker to manufacture his own frames, stocks, and supports, or to attempt any rivetting, soldering, or other work that belongs by rights only to the smithy or forge, chiefly because I want the work to be brought within the reach of all, and not to be restricted to those few who possess workshops—though so much the better if one has

that good fortune. The stocks, frames, and supports are so very inexpensive to buy ; and, if not kept by the tool-dealers mentioned, any smith will make them at a short notice. Bent Iron Work as set forth in these pages can be practised by women or boys who have not the strength required for forge-work ; and can even be worked in a drawing-room without damage to carpet or furniture, if the table used is carefully covered with a thick piece of brown paper.

Venice is accepted as the place of origin of Bent Iron Work, and we certainly get more examples from there than from any other part of Italy. The exact date of its origin is not easily fixed, but it is generally believed to be quite modern. We can trace a likeness to much of it in the old forged work. This can be clearly seen in the Venetian seventeenth-century link chain (Fig. 32), the wings of which were without doubt curved with tools similar to those we use to-day. It may have occurred to the Venetian smith while filling in some light work to his heavy forged frames that by itself this light pincer-work could well be used to advantage. However, this is but supposition, as we have no written history of such modern work.

HINTS ON TEACHING.

A few practical hints on class teaching may be acceptable to those who contemplate turning their knowledge to that account.

(a). Not more than ten individuals should be together in one class.

(b). Take some easy pattern at first ; if possible, one that can be finished in one lesson.

(c). A flat diagram of the pattern on paper or cardboard, with the lengths of the curves distinctly marked on it, should be distributed to every one or two workers. A model of the same, worked out in iron, should be placed on the table or bench so that all could use it for inspection and reference.

(d). As much encouragement as possible should be given in the first lesson.

(e). Visit each worker in turn right through the class.

MATERIALS.

The iron is sold in strips 24" in length varying in width from $\frac{1}{8}$ " to over 1". It can be purchased from Melhuish and Son, 85, Fetter Lane ; The Army and Navy Stores ; A. Williams, 83, Hammersmith Road, and a few other shops, for 8d., or 9d., per pound. The wrought-iron frames and stocks mentioned in the

book, as well as tools—in fact every requisite—can be bought at either of these places.

The glasses, copper vases, lamps, &c., given as patterns can be obtained at suitable shops in almost any town. Iron wire is occasionally wanted; two pennyworth lasts a long time, and can be bought at any ironmonger's.

TOOLS.

Three tools are necessary: viz., (1) a pair of shears for cutting the iron (Fig. 1), 7" long is a useful size (cost about 1s. 6d.); (2) a pair of "flat-nose" pliers for joining and straightening (Fig. 2), and (3) a pair of "round-nose" pliers for making the curves (Fig. 3)



FIG. 1.—Cutting Shears.

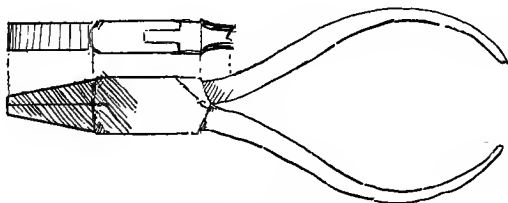


FIG. 2.—Flat-nose Pliers.

(cost, from 6*d.* to 1*s.* each pair). Of course the number of tools can be increased at the discretion of the individual worker.

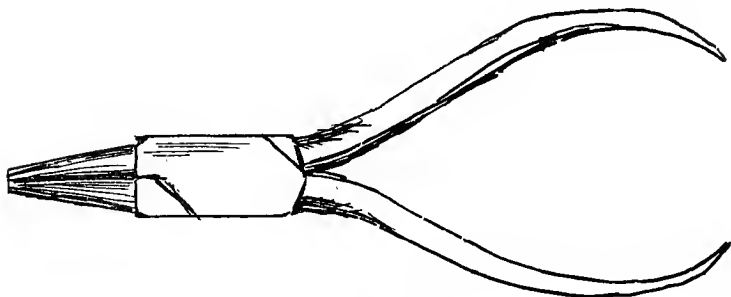


FIG. 3.—Round-nose Pliers.

A hammer and bradawl are sometimes needed for boring holes in the iron.

BLACKENING.

After the iron is made up, to preserve it from rust while maintaining the character of iron, it is best to paint it all over with a dead black. A good and inexpensive mixture is made by mixing four pennyworth of Berlin Black with two pennyworth of Drop Black; the latter must be ground to a powder, dissolved in turpentine, and added to the Berlin Black. The Drop Black tends to give a dull look to the paint, more or less can be used according to the dulness required. The paint should be applied with a camel-hair brush.

INSTRUCTIONS.

Supposing the beginner to have his tools: it is well to make a few suggestions as to the iron required to start with. Five pounds of iron in the following sizes will be material enough; $\frac{1}{2}$ lb. $\frac{1}{8}$ "; $\frac{1}{2}$ lb. $\frac{1}{2}$ "; 2 lb. $\frac{3}{8}$ "; 2 lb. $\frac{1}{4}$ "; and two pennyworth of iron wire.

Pattern 1 (Fig. 4).—Now, to start, choose a simple pattern such as the Letter Rack (Fig. 4). The medium-

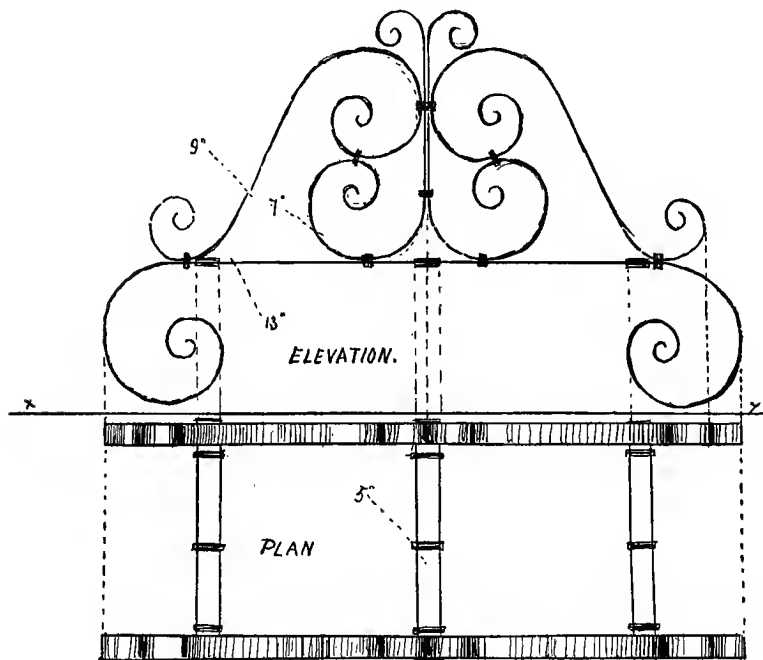


FIG. 4.—Letter Rack.

sized iron is used for this. Cut off four pieces each 9" long.

To do this, hold the shears in the right hand at right angles to the iron and gradually bring the ends

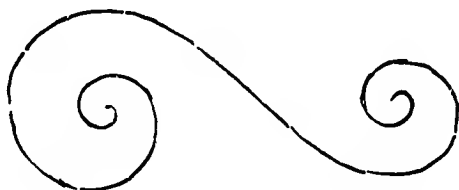


FIG. 5.—S-Curve (part of Letter Rack, Fig. 4).

together, keeping them clear of the palm, otherwise a nasty pinch might result. Another way of breaking the iron—without the shears—is by holding it with the square pliers at the place to be broken, and with the left hand sharply bending the remainder of the strip up and down till it breaks off; this is a most useful substitute for the shears and should be practised by all. Then turn them up to form the S-curves (Fig. 5).

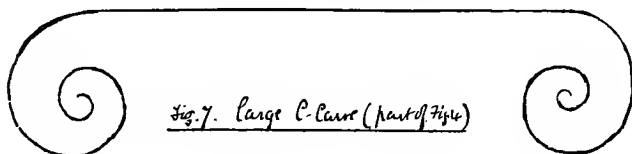
This is done by holding the piece of iron to be curved firmly in the left hand, taking the round-nose pliers in the right hand, and with them grasping the strip at the end and gradually bending it round to form the required curve; when this is done take the opposite end and bend in the same way, holding it so that the curve will be an S- and not a C-. Practice will be required before the curves are quite perfect,

but if faulty they can always be doctored up with the square-nose pliers, which if carefully applied will take out all the angles and kinks. Make the remaining three strips into S-curves in precisely the same way, testing them by placing one on the top of another and seeing that they are exactly the same size.

Next cut four pieces 7" long, and turn up these to form C-curves (Fig. 6), and two pieces each 13" long into large C-curves (Fig. 7). Having these all made, we may proceed to join them together; place two of the Fig. 6 curves back to back as in the pattern (Fig. 4), break off a small strip of the narrowest (binding) iron long enough to form a clasp round the pieces to be joined, then with the square-nose pliers make a small hook at the end (Fig. 8). Hold the pieces to be joined firmly in the left hand, slip the hook round them and give a pinch with the



FIG. 6.—C-Curve (part of Fig. 4).



square pliers to the hooked end; bend the other end with fingers or pliers till they both meet, then press

with the pliers till the join is quite firm. Place the S-curves (Fig. 5) into position and join to the C-curves, then fix to the large C-curve



OPEN CLOSED

FIG. 8.—Clasp for join.

(Fig. 7) that forms two of the feet. With the remaining curves construct a similar figure and connect the two with three straps of iron each 5" long; these should first be doubled towards the centre (Fig. 9), then opened out and slipped into position as in the plan (Fig. 4), doubled back again into place clasped at X, X, X.

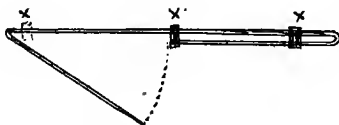


FIG. 9.—Connecting Strap (Fig. 4).

The middle strap should be the first slipped into place and joined, while the ends of the rack are open.

Pattern 2 (Fig. 10).—Having mastered the first pattern, the vase (Fig. 10) should be attempted. The vase itself is simply a ruby glass tumbler costing $3\frac{3}{4}d.$ Two rings must be made to loosely fit the glass, to these the three supporting legs are fastened. The lowest ring is smaller than the top one, and should be slipped between the big C-curve (*a*) and the little curve (*b*), and clasped above and below with binding

iron. The top ring is fastened to the supports by means of "cross-joins," the hooks for these are rather long, and cross each other diagonally. The mount is strengthened by tying together the curves that meet under the glass at X with a piece of iron wire about

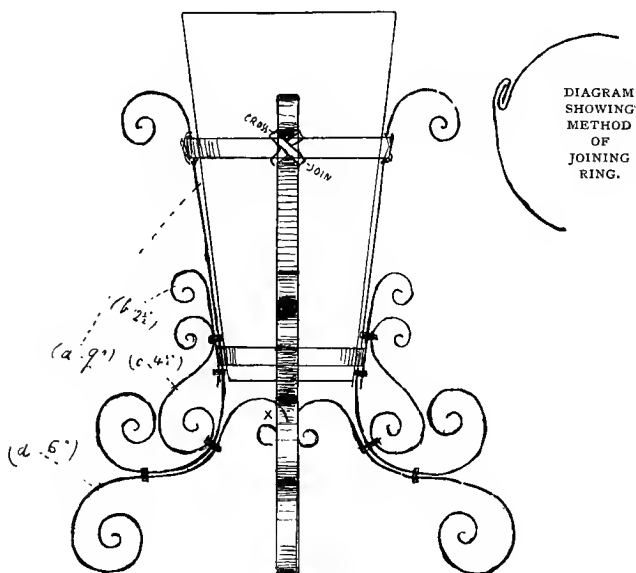


FIG. 10.—Vase Mount.

2" long ; to do this the wire should be bent so as to pass through the three curves, and the ends held firmly in the square-nose pliers and twisted round and round, pulling away from the work all the time till they break off quite close to the join. This "tie-

join" is always used where the "clasp-join" and "cross-join" are not practicable.

The Matchbox Holder (Fig. 11) should be tried

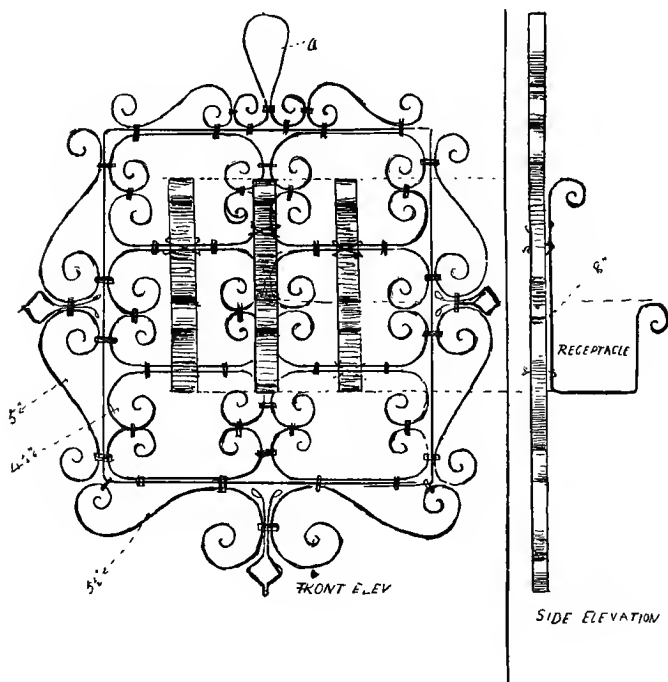


FIG. 11.—Matchbox Holder.

after the vase; the back is made of 12 C-curves $4\frac{1}{2}$ " long, these are joined together in two rows of 6 and framed with a strip of iron, keeping them in place and forming attachment for the curves of the border. To

make the top loop (*a*) by which the Holder is suspended, cut a piece of iron 6" long, bend the ends together with the fingers, grasp them about 1" from the end with the square pliers, then proceed to curve each end in an outward direction. The iron forming the little diamonds between the S-curves should be doubled together, then opened out at an angle of 45°, and grasped with the square pliers close up to the middle, and sharply bent with the fingers over the jaws of the pliers, then bent in the opposite direction: this forms one side of the diamond; the other is made in exactly the same way. The three curves forming the receptacle for the matchbox, each 8" long, are fastened to the back with cross-ties of wire.

The "Spider" Candlestick (Fig. 12) worked out in wide iron is very effective. The patterns must be carefully studied to see the way in which the pieces are joined together. The following curves must be made: viz., two 9" C-curves (*a*); two 5" C-curves (*c*); one 11½" C-curve (*b*); one 7" simple curve (*e*); three 2½" simple curves (*f*), and one 15" twisted curve; this, with the little curve (*g*), forms the handle and one foot, and is balanced on the opposite side by the simple curve (*l*). The nozzle can be bought at Melhuish and Son's for 2½*d*.

(In connection with this pattern it may be interesting to state that one of my boy-workers timed

BENT IRONWORK

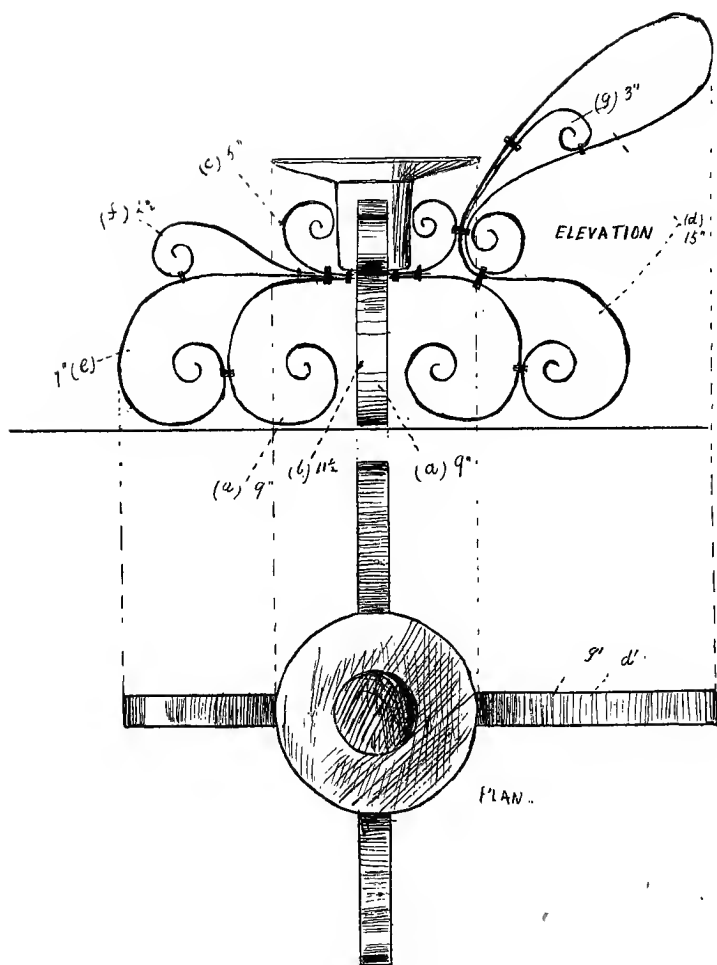


FIG. 12.—"Spider" Candlestick.

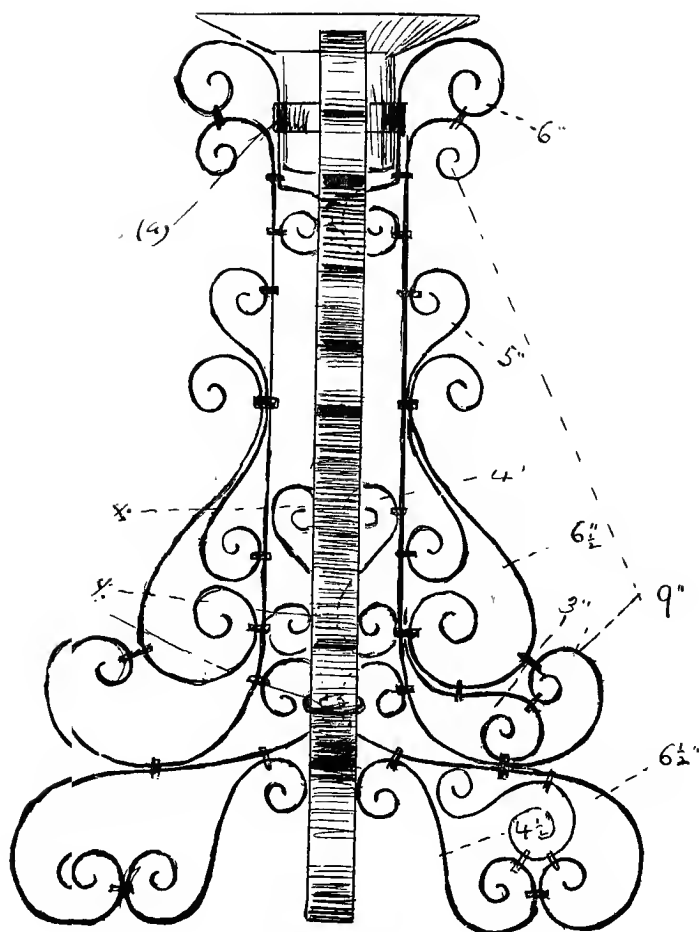


FIG. 13.—Candlestick.

himself while making up the candlestick, and found that it took just one hour.)

Fig. 13 is an upright candlestick, the ring (a) with the three 6" curves cross-joined to it, must just fit the

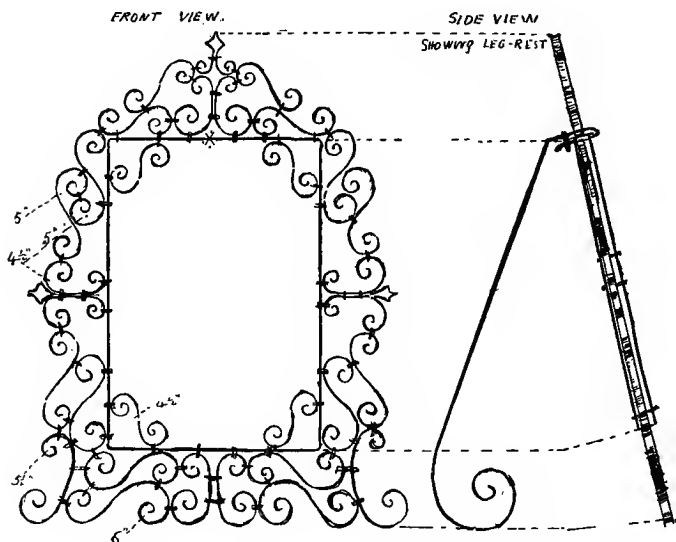


FIG. 14.—Photograph Frame.

FIG. B.

nozzle. The three legs should be made separate, testing them one on top of another, then each one clasped to a ring curve in three places, and all three tied together in places x where the curves meet lower down.

Little difficulty will now be found in working out any of the following patterns to Fig. 28.

The foundation and leg-rest of Fig. 14 must be made of the widest iron; the former so as to allow sufficient space for the back-board and glass, which

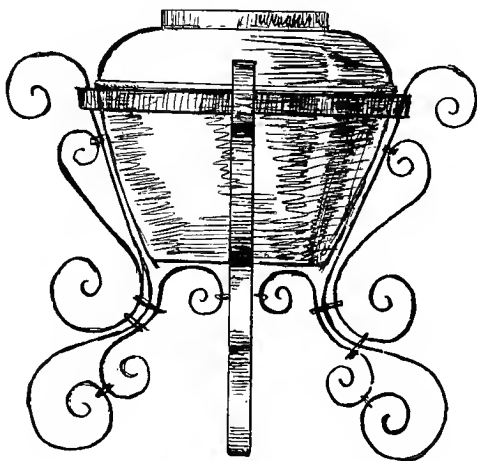


FIG. 15.—Fern or Flower Pot.

are kept in place by two crossing elastic bands at the back, and by four corner S-curves in the front, these are made of narrow iron. The leg-rest is attached to the frame by means of a hook at one end (Fig. 14 B); this is slipped round the foundation at X and firmly clasped behind.

The easiest way to insure accuracy in the construction of the Teapot Stand (Fig. 16) is, to

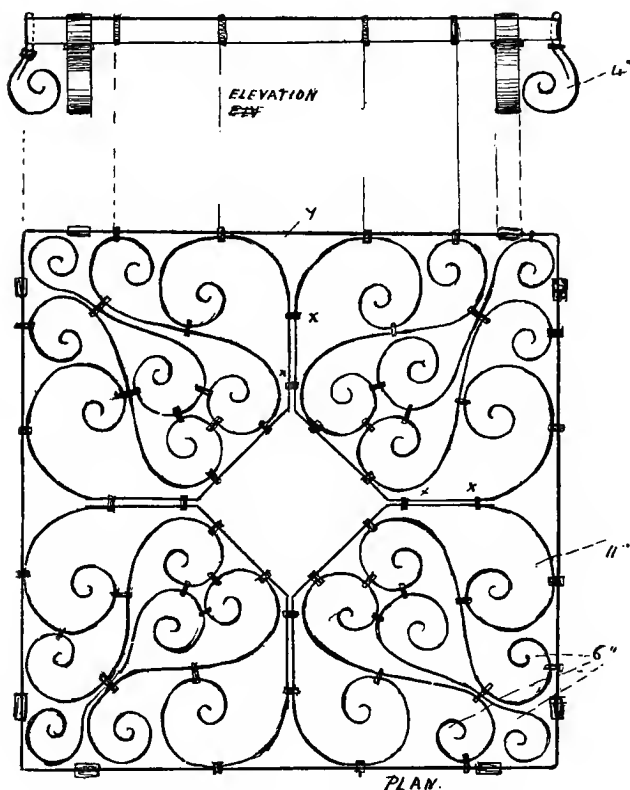


FIG. 16.—Teapot Stand.

make the four quarters, each bounded by the big 11" C-curve, separate, and after careful testing, join

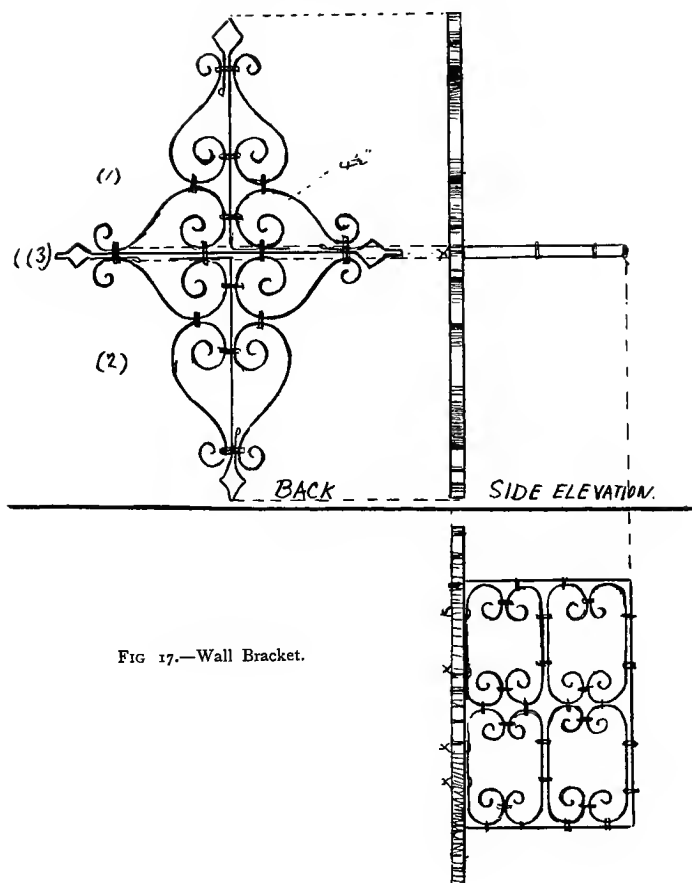


FIG 17.—Wall Bracket.

together at x. A $6\frac{1}{2}$ " square (the size of the bounding strip y) should be roughly ruled on paper and the work placed on top of it, the curves that do not touch the sides of the square being carefully bent

either in or out till they do. Then the bounding strip can be safely fixed without destroying the outline. Two feet are attached to each corner, one on each side of the angle.

The back of the little bracket (Fig. 17) is made of two exactly similar pieces (1) and (2) connected by a

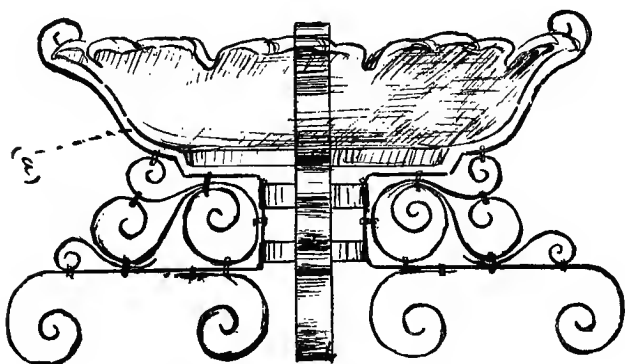


FIG. 18.—Fruit or Cake Dish.

central bar (3) having diamonds at both ends; to this is tied the shelf shown in plan.

The mount of Fig. 18 can be fitted to a plate of any shape, by simply altering the curve (a) to fit the bottom. The common Japanese variety costing 3*d.* or 4*d.* can be used in this way. Heavy green glass dishes mounted with the widest iron form very handsome dessert sets, and are especially adapted to

go with the green table glass that lately has become so popular.

In Fig. 19 the two big S-curves (*a*) form the handles of the vase, as a little variety these occur on two

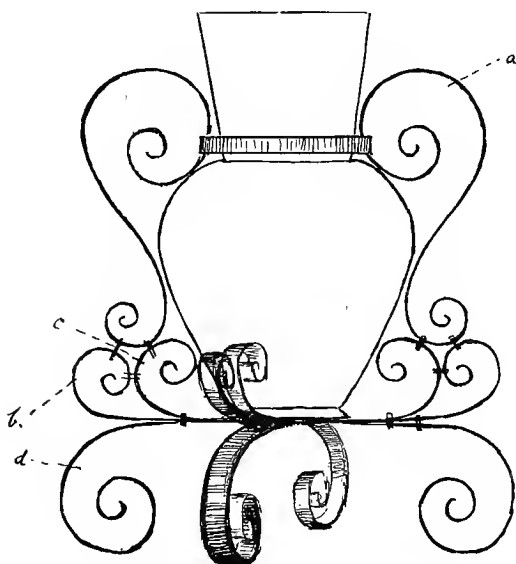


FIG. 19.—Vase.

sides only—the four simple curves (*b*) are slipped in between *c* and *d*; this pattern can be adapted to any vase.

Fig. 20.—The curves *a*, *a*, are made in one piece of iron, so are *c*, *c*; *b*, *b*, are simple curves.

The Candle Brackets (Figs. 21 and 27) are greatly improved by being mounted on a piece of wood. Holes can easily be bored in the iron by means of a hammer and bradawl or even a strong nail ; the iron

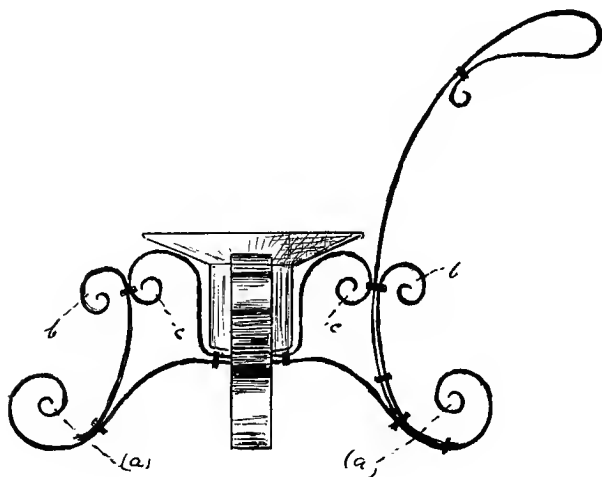


FIG. 20.—Candlestick.

should be held on a piece of wood during the process of boring.

Fig. 23.—A shows the finished pipe rack ; B is a diagram of half the back, after this is made a strip of iron (*d*) must be bent to hold the four S-curves shown in plan C ; to this is fixed the strip with the

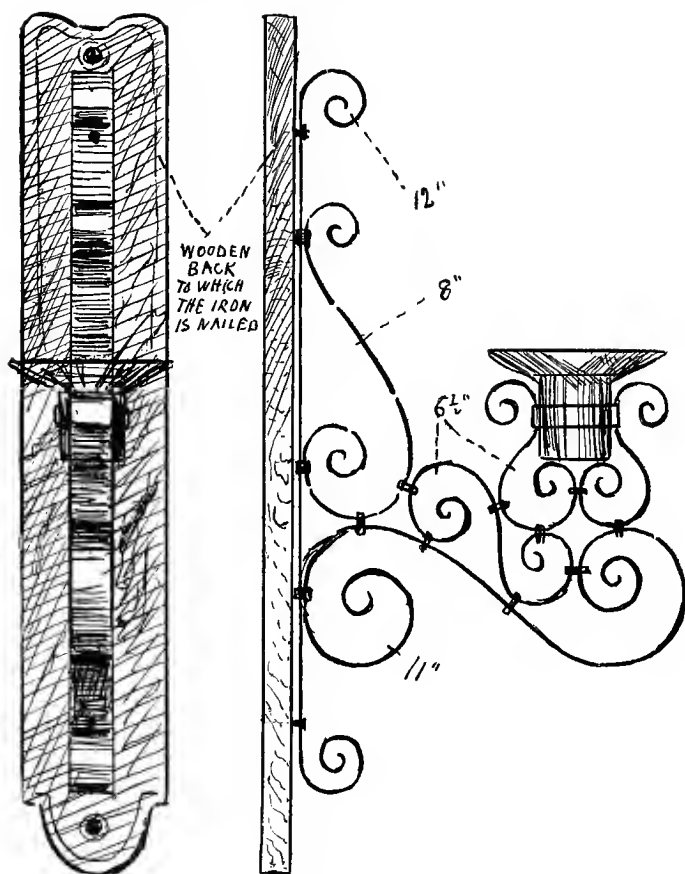


FIG. 21.—Candle Bracket.

circles (*e*); these can be shaped by bending round a ruler or hammer-handle. One full strip of iron will

just make the five holes ; these must be joined to the strip of iron (*d*), and the whole tied to the back [as in B, with at least five ties.

Baskets for ferns, cards, or flower-pots of all

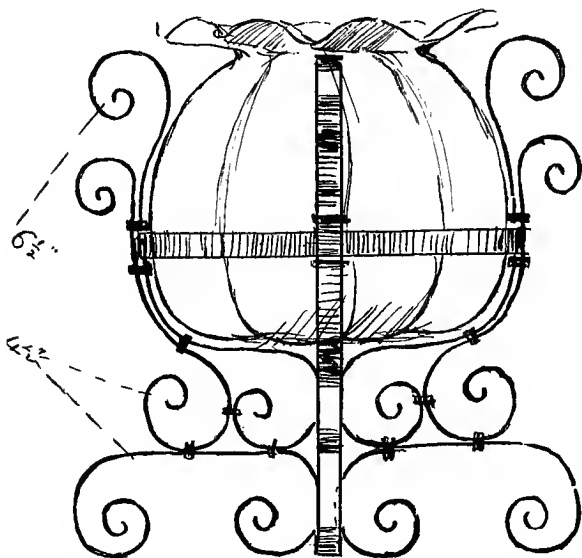


FIG. 22.—Flower Vase.

descriptions are very easy to make—choose some design for a panel or side, such as Figs. 24 and 25, and repeat it according to the size the basket is to be. In the examples given Fig. 24 has six sides, and Fig. 25 has seven. The sides must be joined

Elevation of
Half Back.

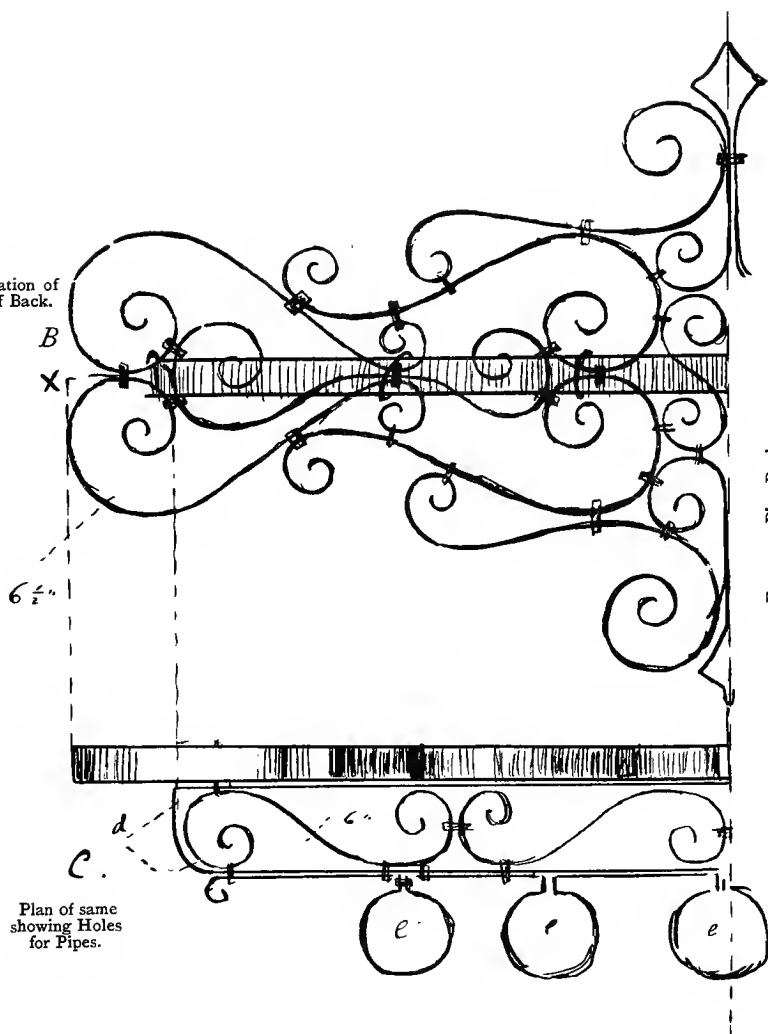


FIG. 23.—Pipe Rack.

together and carefully bent into shape, before the bottom is tied in place.

Fig. 26 is a mount for a little copper bucket ; this can be bought for 6*d.* at 83, Hammersmith Road ; the wide iron should be used for this pattern.

The stock (A) of Fig. 28 must be forged ; it costs 9*d.* at Melhuish's, Fetter Lane. The ring and the four

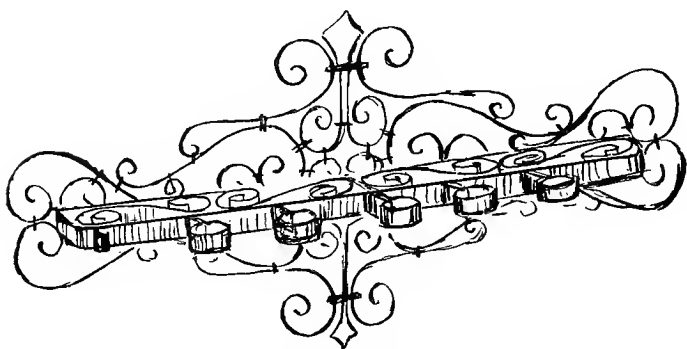
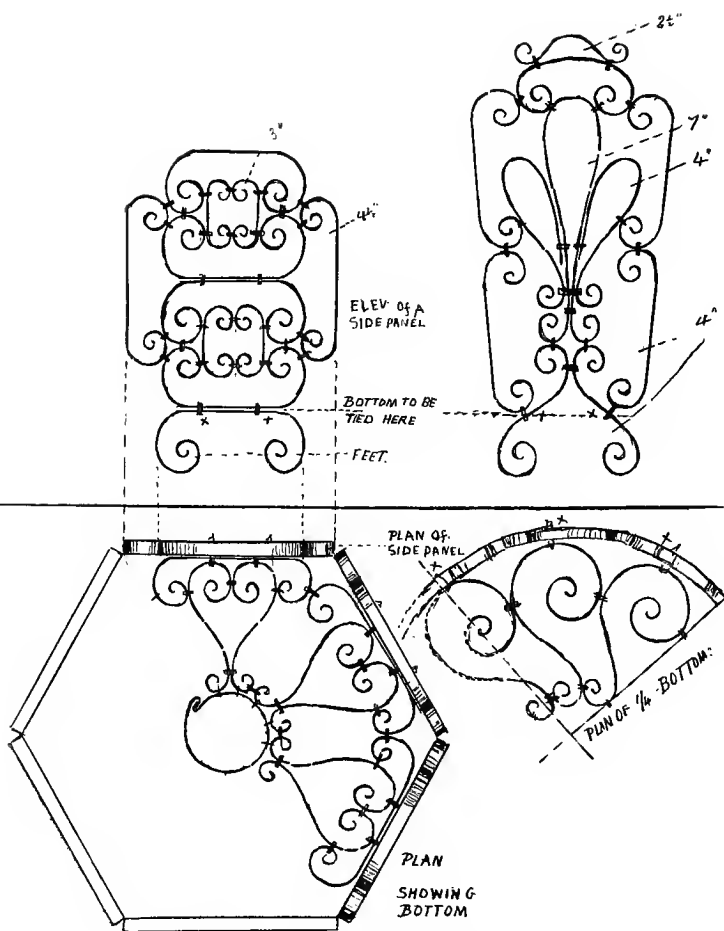


FIG. 23A.—Pipe Rack complete.

S-curves (*e*) must be made and joined together apart from the stock ; the ring should then be unclamped, slipped round the thin stem of the stock up to its position round the nozzle and re-clamped. A new feature is introduced in the twisted links of the Small Hanging Lamp (Fig. 29). To make one of these cut off a piece of narrow iron and turn up the ends as in



FIGS. 24, 25.—Pane and Bottom for Basket.

diagram A. With a pair of pliers in each hand grip both ends of the link at x, x, then proceed to twist in opposite directions, pulling hard all the time to keep the links evenly twisted. The double heart links B contrast very effectively with the somewhat stiff twisted ones. The chains when complete are fastened

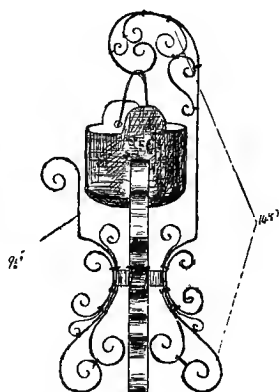


FIG. 26.—Hanging Bucket.

to a top C, which is composed of a round loop D and five C-curves, the two smaller and central ones keeping the loop in place, and the joins of the three outer and larger ones forming attachment for the chains. The bracket E if made of wide iron will be quite strong enough to bear the light weight of the lamp (which is but a large ruby glass salt); the top bar F

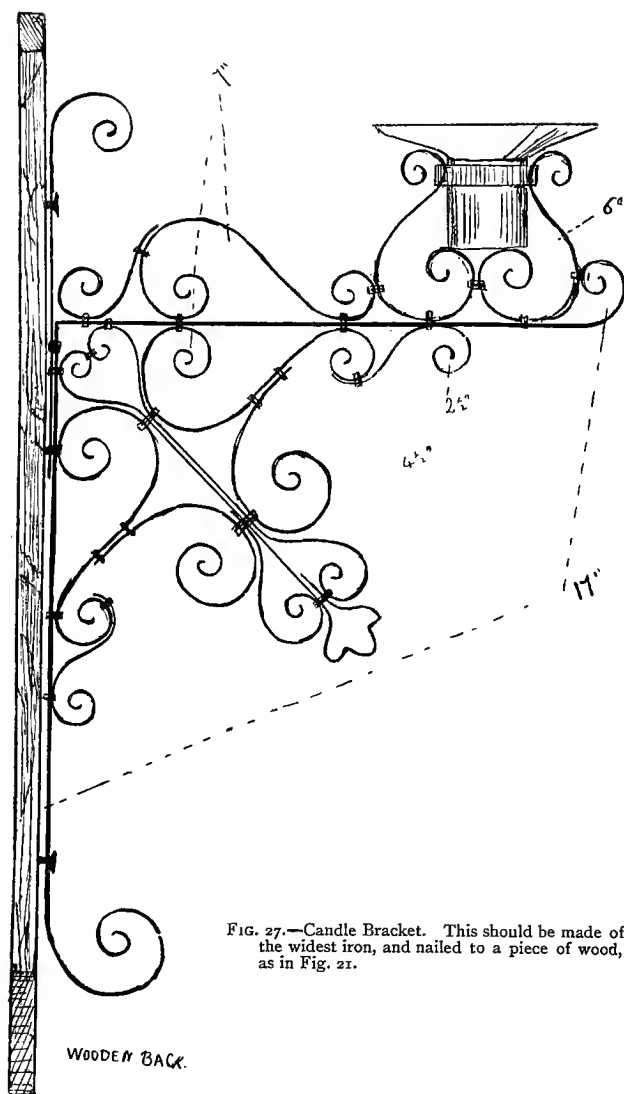


FIG. 27.—Candle Bracket. This should be made of the widest iron, and nailed to a piece of wood, as in Fig. 21.

should be double ; in the pattern the ends of the strip forming the back G are slit up with the shears before bending into shape, and one-half turned in the opposite direction.

The side-panel A of the newspaper rack (Fig. 30) is copied from a very handsome seventeenth-century Italian grille in the South Kensington Museum. Two

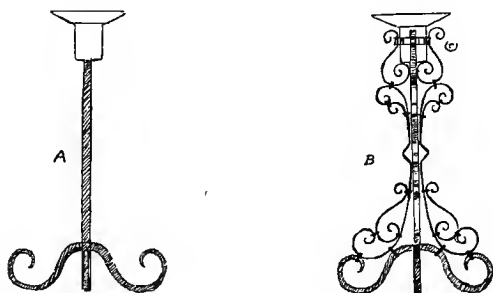


FIG. 28.—Candlestick.

of these should be made exactly alike, and one centre panel B to which is fastened the handle. The bottom (C) is made of sixteen 7" S-curves, and to it must be tied the three panels, holding them carefully at right angles while joining. The six simple curves forming the feet are tied to the bottom last thing of all.

Fig. 31 is a drawing of two links of a chain for a hanging lamp (seventeenth century, Venice, South Kensington Museum). As foundation for each one, a

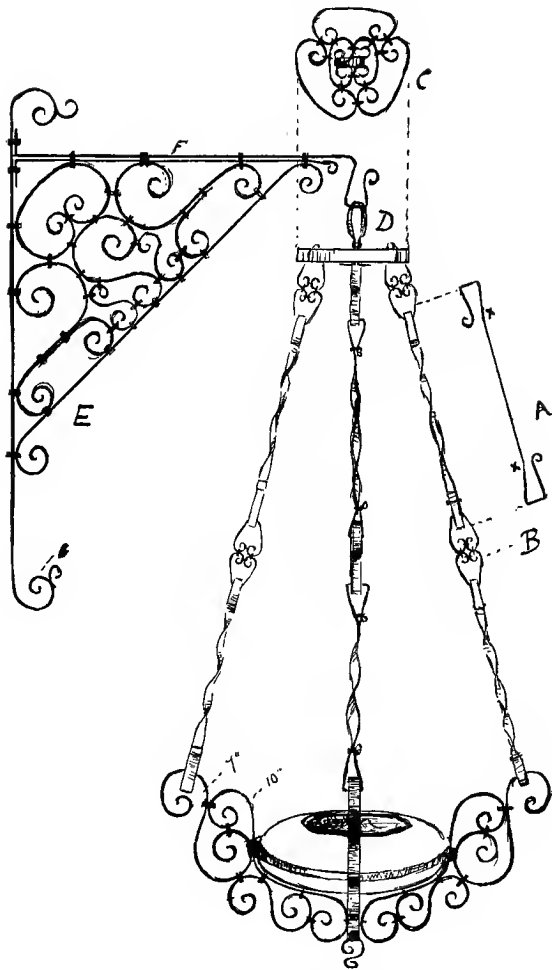
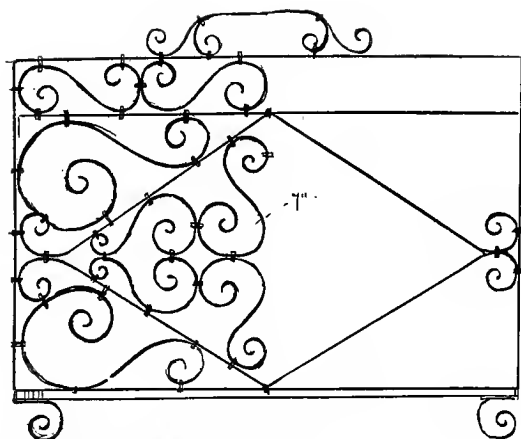


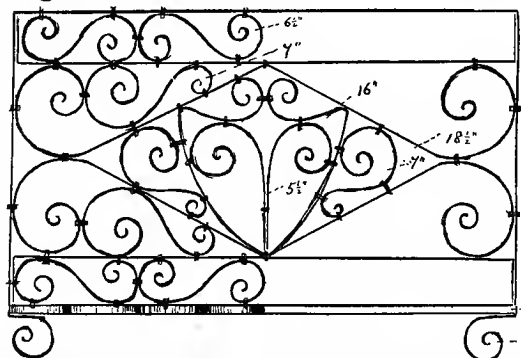
FIG. 29.—Small Hanging Lamp and Bracket.

CENTRE
PANEL

B.

SIDE
PANEL

A.

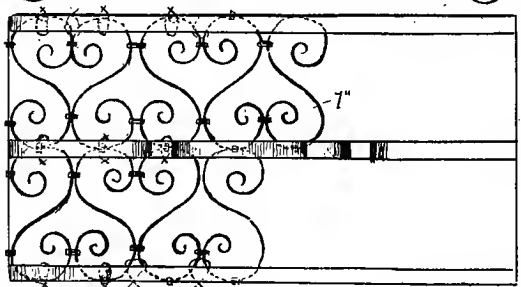


--- BOTTOM

--- FOOT.

PLAN OF
RACKSHOWING
POSITION
OF PANELS
ATTACHED.

C



SIDE PANEL

POSITION OF
CENTRE PANEL

SIDE PANEL

FIG. 30.—Newspaper Rack

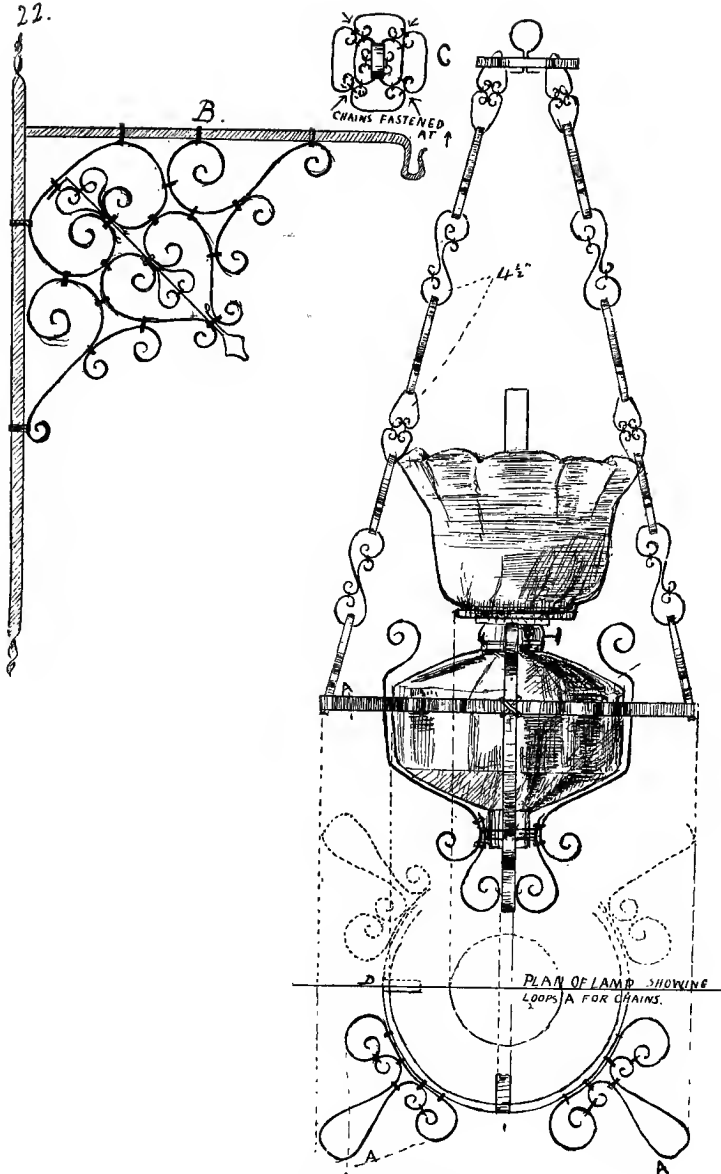


FIG. 31.—Hanging Lamp and Bracket.

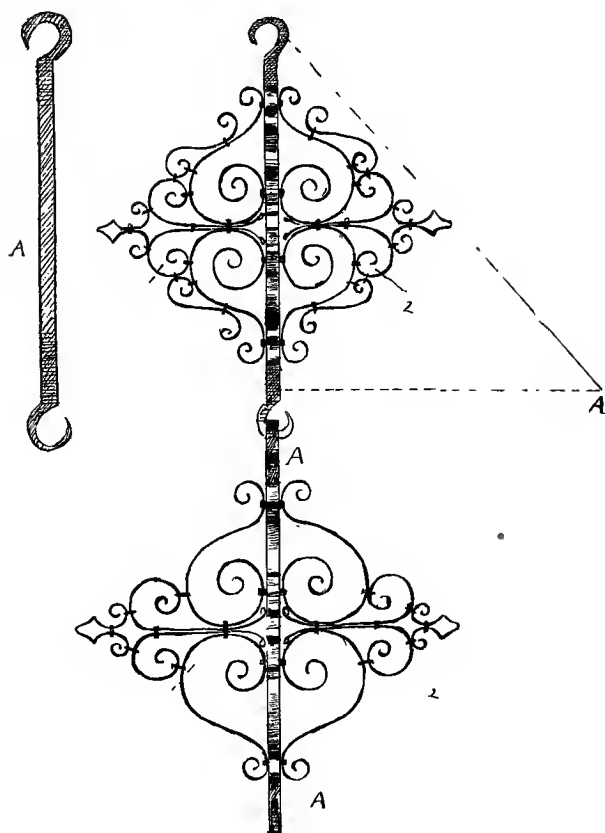
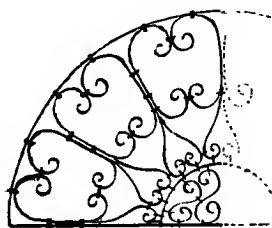
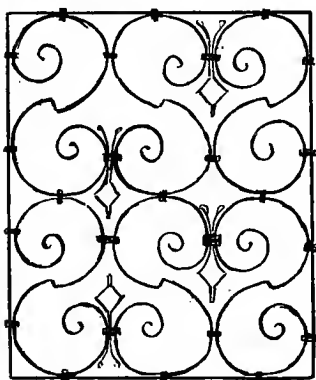
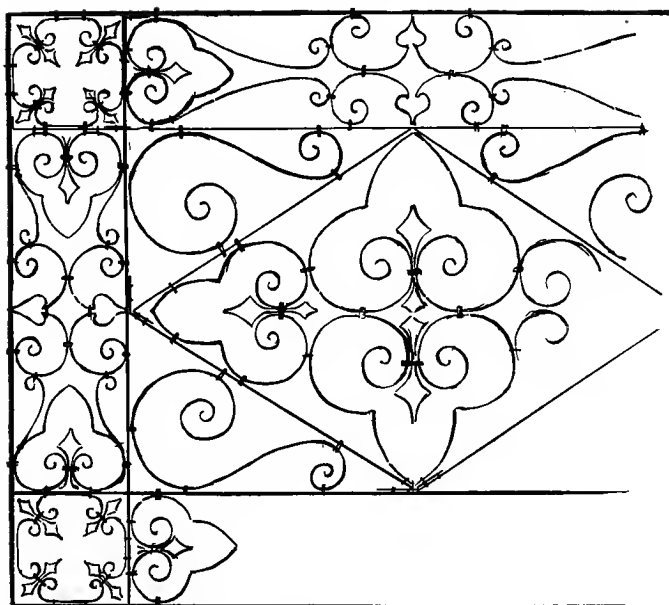


FIG. 31.—Chain for Hanging Lamp.

plain forged iron link is used, which can be bought for a few pence, and to this the four wings are attached, two of which (1, 2) are shown in the drawing of each link.



FIGS. 33, 34, & 35.—Panels suitable for Grilles.

The ruby Princess Lamp for pattern (Fig. 31) costs 2s. 9d., and can be purchased at Monk's, oilman, 201, King's-road, Chelsea. Either three or four chains can be used. To begin, make a ring just a little larger than the glass receptacle; this must be very securely joined, as it forms the most important part of the mount; to it are attached the loops A, for the chains to pass through, the number of loops and chains must be the same as the number of outer C-curves used in the top C, also the curves D which alternate with the loops and are bent to fit the sides of the receptacle. The forged framework of the bracket B can be bought at the Army and Navy Stores for 11d.

This lamp is one of the prettiest things that can be made in bent iron, and I strongly recommend everyone to try it. I myself have had seven demands for this same lamp during the last two years at various times and places—the last as a wedding present to the village schoolmistress of the place where I was staying on the Cornish coast last Easter. It is a present appreciated by both men and women.

Figs. 33, 34, and 35 are panels adapted from examples in the Museum, and are suitable for grilles for cupboard-doors or screens. In each case the outer frame should be of forged iron and the other parts of the widest iron.

The Sanctuary Lamp (Fig. 36) is worked out in

BENT IRONWORK

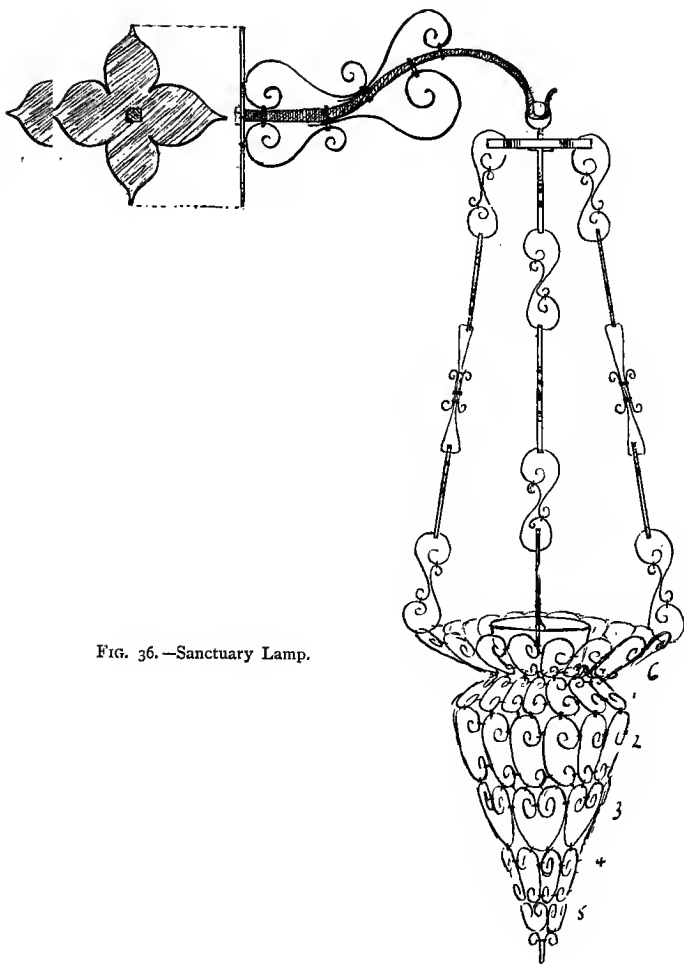


FIG. 36.—Sanctuary Lamp.

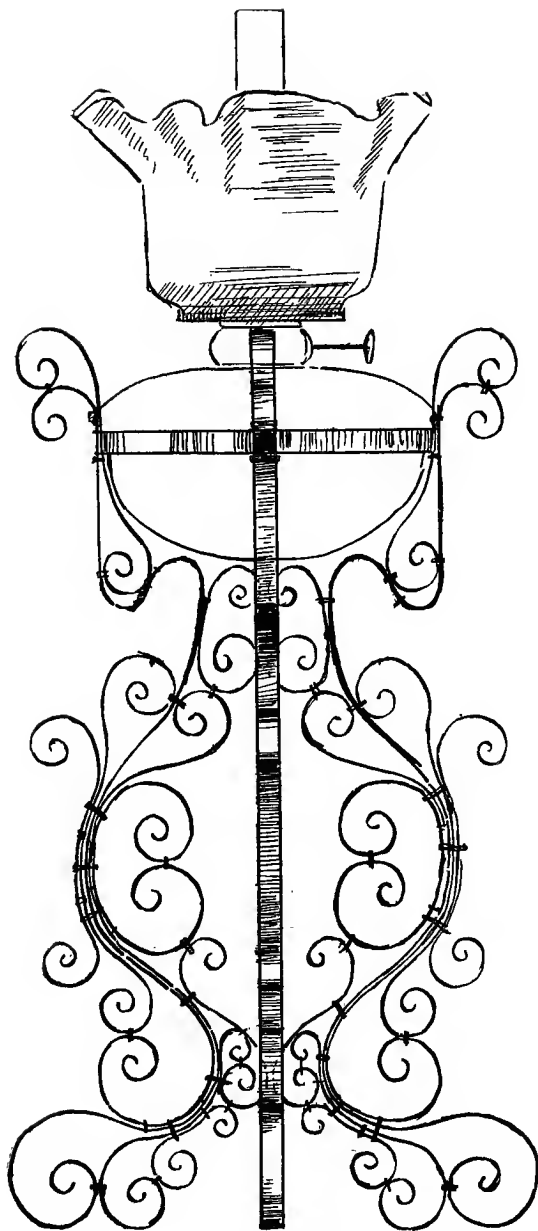


FIG. 37.—Table Lamp.

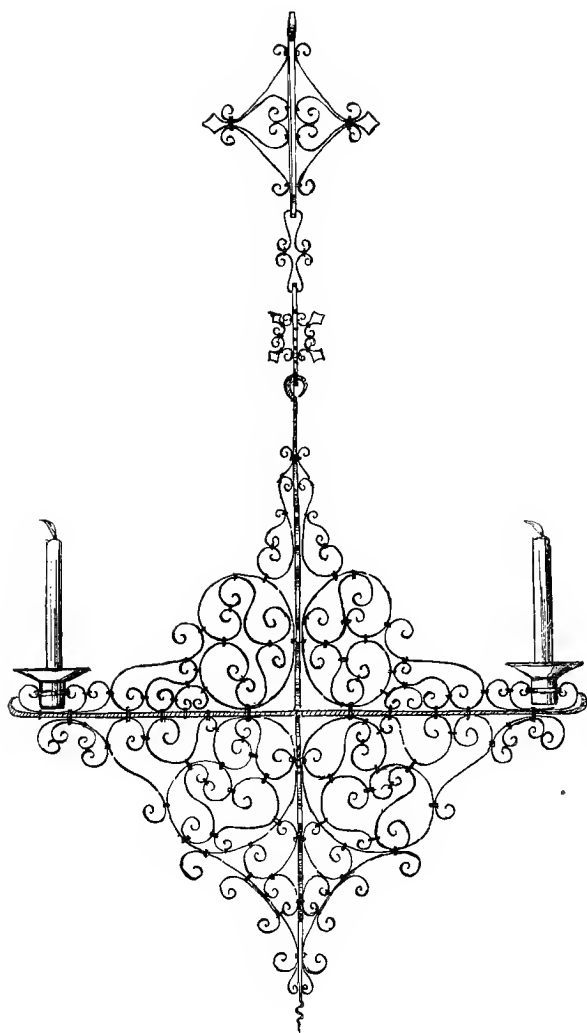


FIG. 38.—Candelabra Pendant with Chain.

narrow iron, the C-curves are made in separate rings, 1, 2, 3, &c., and afterwards joined to each other ; the small glass vessel for the oil can be purchased for a

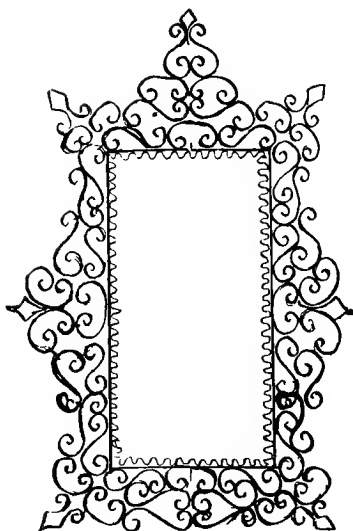


FIG. 39.—Photo Frame.

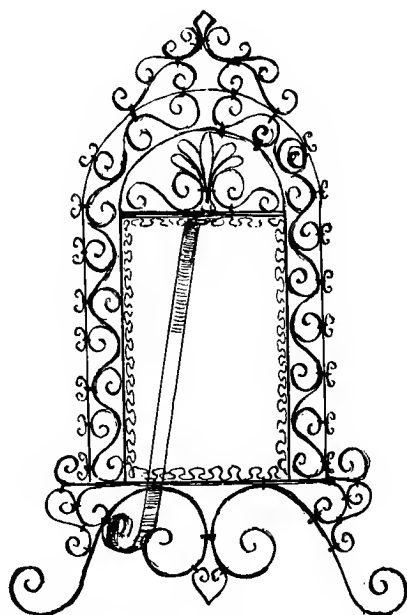


FIG. 40.—Photo Frame.

few pence. The bracket in this case is fixed into a four-pointed piece of thin sheet iron.

Fig. 37 is a mount for a copper lamp ; this, with ruby shade, can be bought at 85, Hammer-



FIG. 41.—Stand for Vase
or Pot.

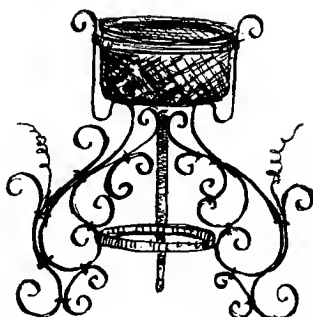


FIG. 42.



FIG. 43.

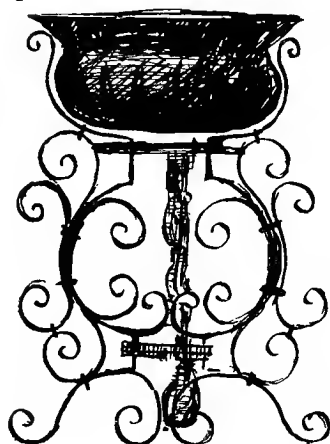


FIG. 44.

Mounts for Vases.

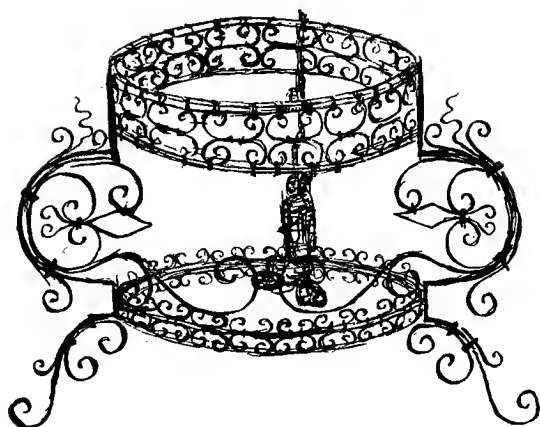


FIG. 45.

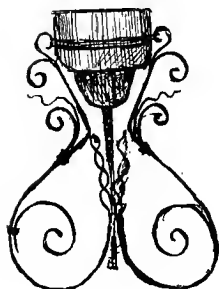


FIG. 46.

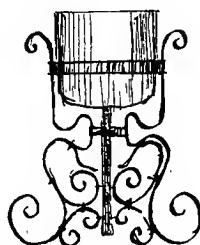


FIG. 47.

Mounts for Vases.

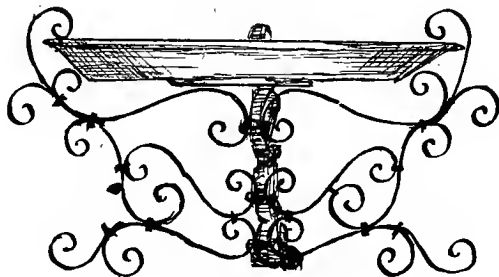


FIG. 48.—Mount for Plate.

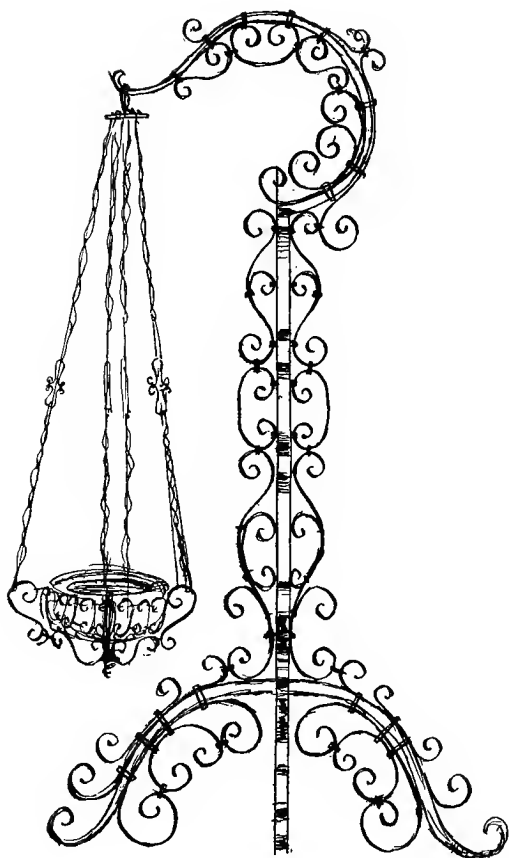


FIG. 49.—Stand with Hanging Basket.

smith Road, for prices upwards from 3*s.* 6*d.* The widest iron should be used, and if the lamp is very

massive the foundation of the mount should be forged iron.

Fig. 38 shows two wings for a hanging candelabra ; the central upright and horizontal bars must be forged if the candelabra is to consist of four wings, though if

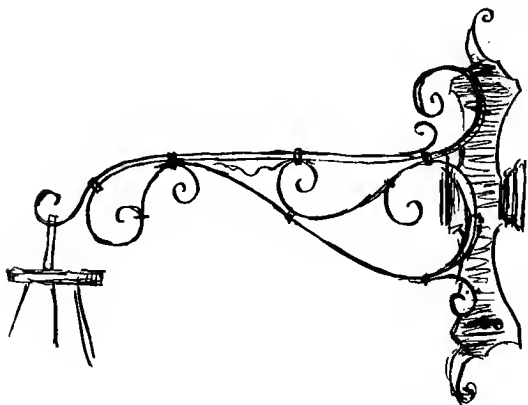


FIG. 50.—Bracket.

of two only the wide iron will be strong enough. Taken by itself one wing forms a good strong candle bracket.

The framework, Fig. 52, of the lantern, Fig. 53, must be made by a smith. In the bottom a socket is fixed by which a candle or small Princess lamp is kept in place. The round glasses for the sides can be bought at Salviati's in Regent Street ; these are fitted

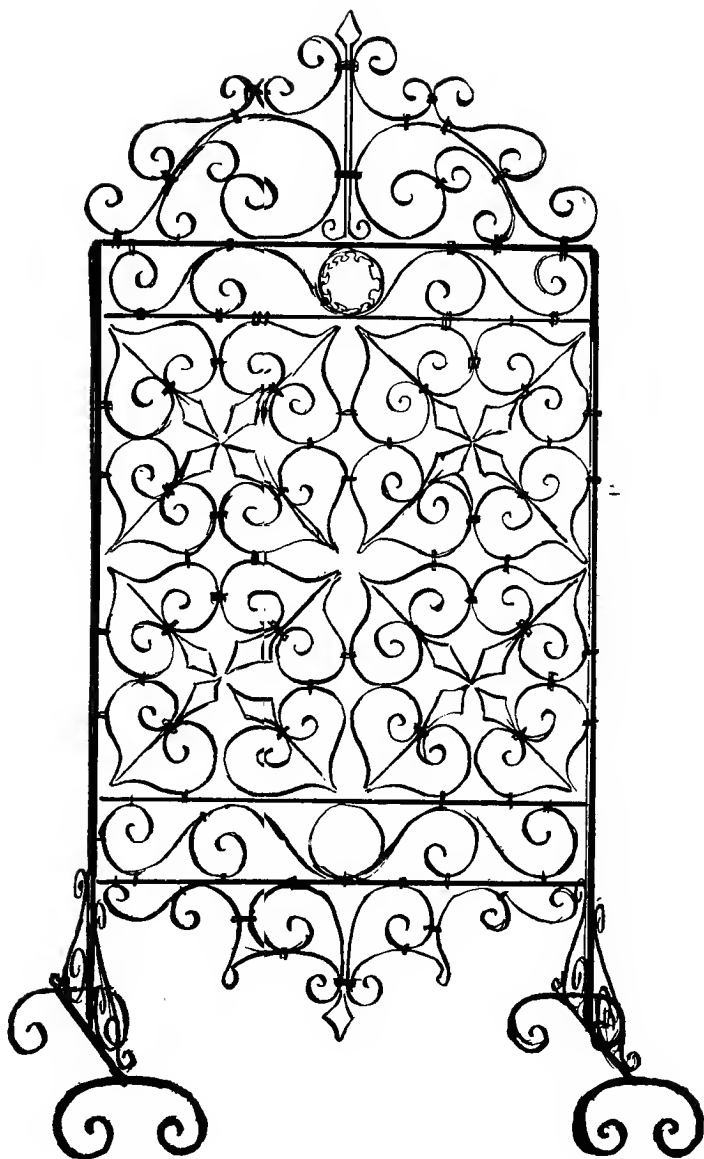


FIG 51.—Fire Screen.

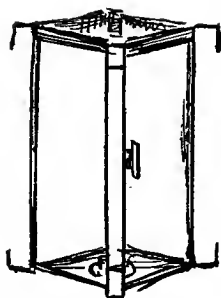
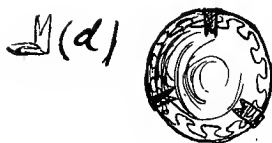


FIG. 52.—Framework
for Lamp.



B

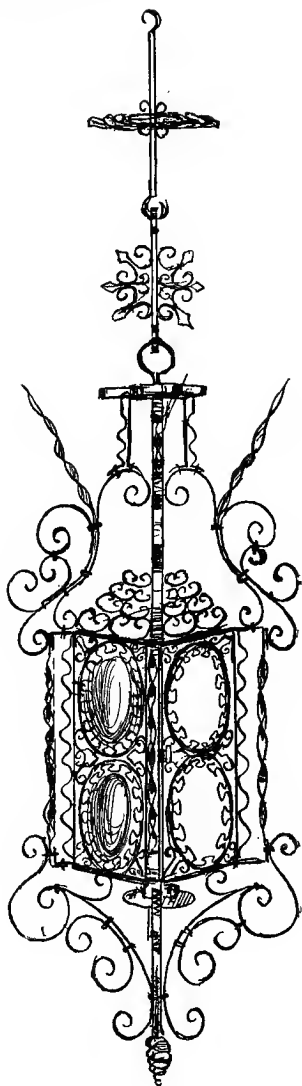


FIG. 53.

into rings of wide strip iron by means of little iron or tin clips (*d*) on the inside, and the meander or waved

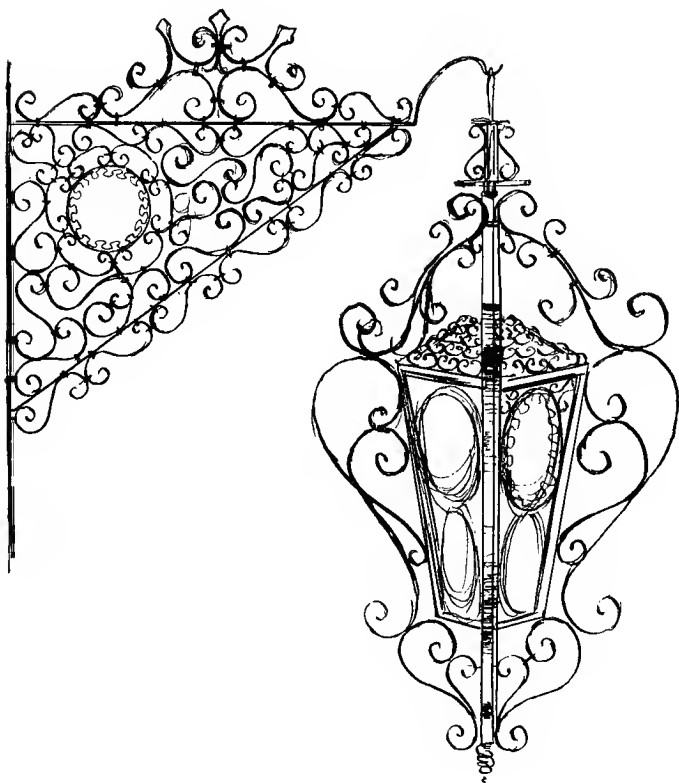


FIG. 54.

circle of very narrow iron on the outside, so that the glass cannot possibly slip out of place ; these circles are connected with the framework by small curves in

the corners. The two lanterns given as patterns are square—having three sides and a hinged door—but by altering the number of sides in the framework they can be made hexagonal or octagonal as wished.

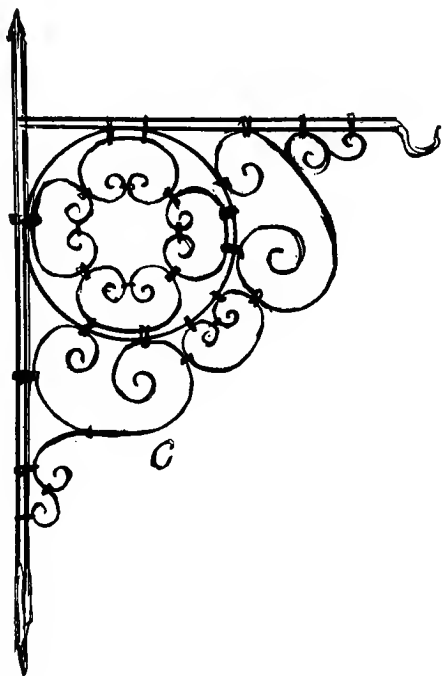


FIG. 55.

